In the claims:

1. (Original) A process for determining a transforming element for a given transformation function, which transformation function comprises a transformation matrix and corresponds to a transformation of a digital signal from the time domain into the frequency domain or vice versa, wherein:

the transformation matrix is decomposed into a rotation matrix and an auxiliary matrix which, when multiplied with itself, equals a permutation matrix multiplied with an integer diagonal matrix;

the rotation matrix and the auxiliary matrix are each decomposed into a plurality of lifting matrices;

the transforming element is determined to comprise of a plurality of lifting stages which correspond to the lifting matrices.

2. (Original) The process of claim 1, wherein the transformation function is a DCT-I transformation function, DCT-IV transformation function, DST-I transformation function, DST-IV transformation function, DFT-I transformation function, DFT-IV transformation function, DWT-I transformation function or DWT-IV transformation function.

3. (Currently amended) The process of claim 1 ~~or 2~~, wherein the lifting matrices are each block-triangular matrices with two invertible integer matrices in one diagonal.

4. (Original) The process of claim 3, wherein the invertible integer matrices in each lifting matrix are identity matrices or negative identity matrices.

5. (Currently amended) The process of ~~any one of claims 1 to 4~~ claim 1, wherein the transforming element comprises five lifting stages.

6. (Currently amended) The process of ~~any one of claims 1 to 5~~ claim 1, wherein an audio signal or a video signal is used as the digital signal.

7. (Original) A device for determining a transforming element for a given transformation function, which transformation function comprises a transformation matrix and corresponds to a transformation of a digital signal from the time domain into the frequency domain or vice versa, the device comprising:

a first decomposition unit for decomposing the transformation matrix into a rotation matrix and an auxiliary matrix which, when multiplied with itself, equals a permutation matrix multiplied with an integer diagonal matrix;

a second decomposition unit for decomposing the rotation matrix and the auxiliary matrix each into a plurality of lifting matrices;

a determination unit for determining the transforming element to comprise of a plurality of lifting stages which correspond to the lifting matrices.

8. (Original) A method for transforming a digital signal from the time domain into the frequency domain or vice versa using a transforming element, wherein:

the transforming element corresponds to a given transformation function, which transformation function comprises a transformation matrix wherein the transforming element is determined by a process comprising

decomposing the transformation matrix into a rotation matrix and an auxiliary matrix which, when multiplied with itself, equals a permutation matrix multiplied with an integer diagonal matrix;

decomposing the rotation matrix and the auxiliary matrix each into a plurality of lifting matrices;

determining the transforming element to comprise of a plurality of lifting stages which correspond to the lifting matrices;

each lifting stage comprises the processing of sub-blocks of the digital signal by an auxiliary transformation and by a rounding unit.

9. (Original) A device for transforming a digital signal from the time domain into the frequency domain or vice versa

comprising a transformation unit for transforming the digital signal by a transforming element, wherein:

the transforming element corresponds to a given transformation function, which transformation function comprises a transformation matrix wherein the transforming element is determined by a process comprising

decomposing the transformation matrix into a rotation matrix and an auxiliary matrix which, when multiplied with itself, equals a permutation matrix multiplied with an integer diagonal matrix;

decomposing the rotation matrix and the auxiliary matrix each into a plurality of lifting matrices;

determining the transforming element to comprise of a plurality of lifting stages which correspond to the lifting matrices;

for each lifting stage the device comprises an auxiliary transformation unit for processing sub-blocks of the digital signal and a rounding unit for processing sub-blocks of the digital signal.

10. (Original) A computer readable medium having a program recorded thereon, wherein the program is adapted to make a computer perform a process for determining a transforming element for a given transformation function, which transformation function comprises a transformation matrix and corresponds to a transformation of a digital signal from the time domain into the frequency domain or vice versa, wherein:

the transformation matrix is decomposed into a rotation matrix and an auxiliary matrix which, when multiplied with itself, equals a permutation matrix multiplied with an integer diagonal matrix;

the rotation matrix and the auxiliary matrix are each decomposed into a plurality of lifting matrices;

the transforming element is determined to comprise of a plurality of lifting stages which correspond to the lifting matrices.

11. (Original) A computer readable medium having a program recorded thereon, wherein the program is adapted to make a computer perform a method for transforming a digital signal from the time domain into the frequency domain or vice versa using a transforming element, wherein:

the transforming element corresponds to a given transformation function, which transformation function comprises a transformation matrix wherein the transforming element is determined by a process comprising

decomposing the transformation matrix into a rotation matrix and an auxiliary matrix which, when multiplied with itself, equals a permutation matrix multiplied with an integer diagonal matrix;

decomposing the rotation matrix and the auxiliary matrix each into a plurality of lifting matrices;

determining the transforming element to comprise of a plurality of lifting stages which correspond to the lifting matrices;

each lifting stage comprises the processing of sub-blocks of the digital signal by auxiliary transformations and by a rounding unit.

12. (New) The process of claim 2, wherein the lifting matrices are each block-triangular matrices with two invertible integer matrices in one diagonal.

13. (New) The process of claim 12, wherein the invertible integer matrices in each lifting matrix are identity matrices or negative identity matrices.